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TWO NEW SPECIES OF THE CHEWING LOUSE GENUS *GLIRICOLA* MJÖBERG (PHTHIRAPTERA: GYROPIDAE) FROM PERUVIAN RODENTS

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Abstract.—Two new species of chewing lice (Phthiraptera: Gyropidae) from high-elevation Peruvian rodents are described and illustrated: ***Gliricola cutkompi*** from *Cuscomys ashaninka* Emmons (Abrocomidae) and ***G. brooksae*** from *Dactylomys peruanus* (J. A. Allen) (Echimyidae). The specimen of *Cuscomys ashaninka* that yielded the series of *G. cutkompi* also was the source of the type series of the previously described *Abrocomophaga emmonsae* Price and Timm. This finding reconfirms that single individual caviomorph rodents may harbor two different genera of lice of the family Gyropidae.

Resumen.—Se describen y se ilustran dos especies nuevas de piojos suramericanos (Phthiraptera: Gyropidae) de roedores peruanas de alta montaña: ***Gliricola cutkompi*** parásito de *Cuscomys ashaninka* Emmons (Abrocomidae) y ***G. brooksae*** parásito de *Dactylomys peruanus* (J. A. Allen) (Echimyidae). La serie típica de *G. cutkompi* fue colectada del mismo especimen de *Cuscomys ashaninka* del cual se colectó la serie típica de *Abrocomophaga emmonsae* Price y Timm, anteriormente descrita por nosotros. Tal descubrimiento reconfirma que un solo individuo de roedor caviomorfo puede hospedar a dos generos distintos de la familia Gyropidae.

Key Words: chewing lice, *Gliricola*, Gyropidae, Phthiraptera, Rodentia

The chewing louse genus *Gliricola* Mjöberg (Phthiraptera: Gyropidae) contains 38 recognized species, with 29 of these in the nominate subgenus and 9 in the subgenus *Hutiaphilus* Price and Timm. The members of the subgenus *Gliricola* are known from the Central and South American caviomorph rodent families Caviidae and Echimyidae. Members of *Hutiaphilus* are restricted to the caviomorph family Capromyidae, the West Indian hutias that are found on the islands of the Greater and Lesser Antilles and the Bahamas. In our description of the subgenus *Hutiaphilus*, we provide a discussion of the features of the genus *Gliricola* as well as both subgenera (Price and Timm 1997). Detailed characterization of members of the family Gyropidae and subfamily Gliricolinae have been presented by Clay (1970) and Price and Timm (2000). For brevity, these will not be repeated here.

We recently obtained two series of *Gliricola* from two poorly known high-elevation caviomorph rodents from Peru—the recently described abrocomid *Cuscomys ashaninka* Emmons (Abrocomidae) and the montane bamboo rat *Dactylomys peruanus*

(J. A. Allen) (Echimyidae). Each of these series represents a species new to science in the nominate subgenus. Furthermore, these hosts represent new generic records for *Gliricola,* and one, *Cuscomys ashaninka,* represents a new family record, the Abrocomidae. It is our intent to describe and illustrate these new species here.

In the following descriptions, all measurements are in millimeters. The holotypes and some paratypes of both new species will be deposited in the Museo de Historia Natural, Universidad Nacional de San Marcos, Lima, Peru; other paratypes will be distributed to the National Museum of Natural History, Smithsonian Institution (Washington, D.C.), the K. C. Emerson Entomology Museum, Oklahoma State University (Stillwater, Oklahoma), and the University of Minnesota (St. Paul, Minnesota). The hosts are deposited in the Museo de Historia Natural, Universidad Nacional de San Marcos (MUSM) and the National Museum of Natural History, Washington (USNM). Abbreviations used for dimensions are given in the first description. For split drawings with a median vertical line, dorsal is to the left and ventral to the right.

Gliricola (*Gliricola*) *cutkompi* Price and Timm, new species

(Figs. 1–3)

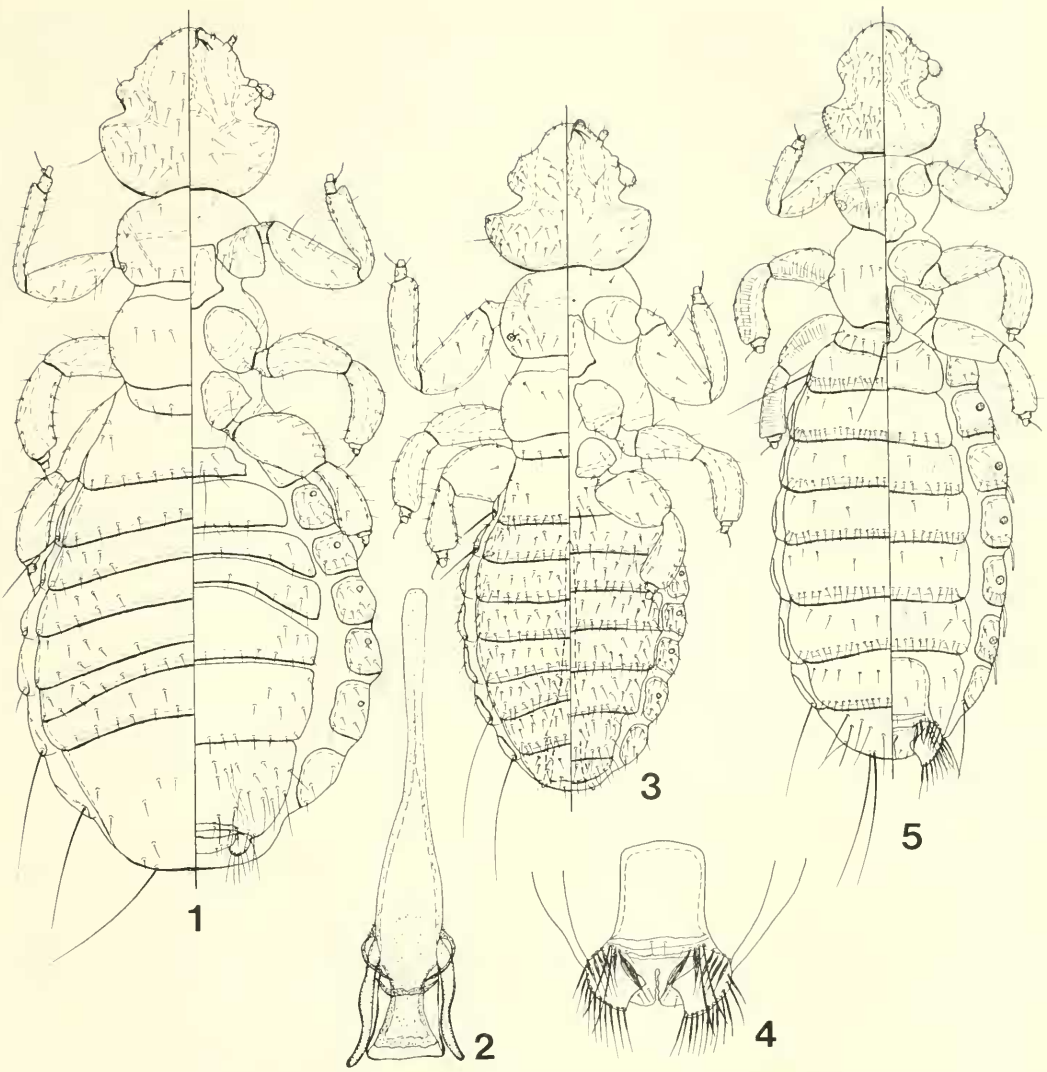
Type host.—*Cuscomys ashaninka* Emmons.

Female.—As in Fig. 1. Abdomen broad, with sparse chaetotaxy. Marginal tergal setae: I, 5–6; II–VIII, 10–17. Anterior tergal setae: I, 0; II–III, 2–7; IV–VIII, 4–14. Pleural setae: II–VII, 10–14; VIII, 7–9; each side of pleura II–III with long seta, VII–VIII with very long seta. Sternum II with 6–8 total setae. Marginal sternal setae: III, 8; IV–V, 9–13; VI–VII, 15–17. Anterior sternal setae mostly lateral: III, 0–3; IV–V, 2–5; VI, 4–7; VII, 7–10. Tergum VII shortened, terminal tergum large. Sterna IV–V short, VI medially enlarged, and VII enlarged, subrectangular. Each gonapophysis with 10–11 slender marginal setae. Dimensions: temple width (TW), 0.27–0.29; head length (HL), 0.24–0.27; prothorax width (PW), 0.22–0.23; metathorax width (MW), 0.24–0.27; abdomen width at segment V (AWV), 0.49–0.56; total length (TL), 1.17–1.30.

Male.—As in Fig. 3. Head and thorax near those of female. Abdomen with denser chaetotaxy and terga and sterna all of approximately same length. Marginal tergal setae: I, 4–6; II–VII, 15–22; VIII, 13–16. Anterior tergal setae: I, 0; II, 4–8; III–VIII, 13–23. Pleural setae: II–III, 11–15; IV–VII, 11–17; VIII, 10–14. Sternum II with 6–7 total setae. Marginal sternal setae: III, 8–10; IV–VII, 13–19. Anterior sternal setae evenly across segment: III, 4–8; IV, 9–13; V, 11–15; VI, 14–19; VII, 17–22. Genitalia as in Fig. 2. Dimensions: TW, 0.25–0.27; HL, 0.22–0.23; PW, 0.20–0.22; MW, 0.22–0.23; AWV, 0.37–0.39; TL, 1.01–1.06; genitalia width at paramere base, 0.06–0.07; genitalia paramere length, 0.09–0.10; genitalia length, 0.38–0.41.

Type material.—Holotype female, ex *Cuscomys ashaninka,* Perú: Cuzco, Cordillera Vilcabamba (11°39′36″S, 73°38′31″W), el. 3,350 m, 15 June 1997, coll. Louise H. Emmons #1359; in collection of the Museo de Historia Natural, Universidad Nacional de San Marcos, Lima, Perú, MUSM 12715 ♀ (also see Emmons 1999). Paratypes: 4 ♀, 5 ♂, same data as holotype.

Diagnosis.—The wide female head and abdomen, with the gross modifications in sizes of certain abdominal terga and sterna, set this species apart from all other known *Gliricola.* Additionally, the female gonapophysis setae do not include any broad flattened setae, a condition that virtually all other species show. The male genitalia of *G. cutkompi* are unique, but show a general overall similarity to those of five other species—*G. decurtatus* (Neumann) from *Kannabateomys amblyonyx* (Wagner), *G. fonsecai* Werneck from *Echimys dasythrix* (Hensel), *G. maculatus* Werneck from *Proechimys iheringi* Thomas, *G. humilis* Werneck from *Proechimys albispinus* (I.



Figs. 1–5. 1–3, *Gliricola cutkompi*. 1, Female, dorsoventral. 2, Male genitalia. 3, Male, dorsoventral. 4–5, *G. brooksae*. 4, Female ventral terminalia. 5, Female, dorsoventral.

Geoffroy), and *G. paraensis* Werneck from *Echimys grandis* (Wagner). However, there are distinct differences in genitalic details and the females of all five species are quite different from those of *G. cutkompi*.

We are uncertain about our interpretation of the unique segmentation of the female dorsal terminalia. There is the possibility that what we present in the female description as a shortened tergum VII and much enlarged terminal tergum may actually be a situation in which tergum VII is transversely divided into two parts. If that is the case, then what we here consider terga VII and VIII may actually be a case in which both parts originate with tergum VII and tergum VIII may be fused with IX to form the enlarged terminal tergum. The location of the pleura and sterna seem to support the latter interpretation. Whichever may be correct, the details illustrated in Fig. 1 clearly impart the essentials necessary for the correct application of the data in the description.

Etymology.—This species is named for

Laurence K. Cutkomp, Department of Entomology, University of Minnesota, in recognition of his lengthy and productive career in teaching and research on insect toxicology and the over 45 years he has been a close friend and colleague of the senior author.

Gliricola (*Gliricola*) *brooksae* Price and Timm, new species

(Figs. 4–5)

Type host.—*Dactylomys peruanus* (J. A. Allen).

Female.—As in Fig. 5. Abdomen narrow, without modifications of tergal and sternal sizes, and with many marginal tergal and sternal setae. Total tergal setae on I, 11–14. Marginal tergal setae: II–V, 25–34; VI–VII, 24–29; VIII, 20–25. Anterior tergal setae: II, 0–1; III–VI, 4–8; VII–VIII, 5–11. Pleural setae: II–VII, 7–14; VIII, 3–9; each of spiracle-bearing pleura III–VII with slender lateroposterior process; each side of pleuron II with 1 very long lateral seta and VIII with 2 such setae. Sternum II with 4–8 total setae. Marginal sternal setae: III, 8–10; IV, 13–18; V–VII, 17–21. Anterior sternal setae: III, 0; IV, 0–5; V–VI, 3–7; VII, 7–11. Each gonapophysis (Fig. 4) with 17–21 prominent marginal setae. Dimensions: TW, 0.19–0.20; HL, 0.20–0.21; PW, 0.15–0.16; MW, 0.19–0.21; AWV, 0.37–0.43; TL, 1.17–1.29.

Male.—Unknown.

Type material.—Holotype female, ex *Dactylomys peruanus*, Perú: Junin, Cordillera Vilcabamba (11°31′35″S, 73°38′31″W), el. 2,015 m, 23 June 1997, coll. Louise H. Emmons #1374; in collection of the Museo de Historia Natural, Universidad Nacional de San Marcos, Lima, Perú, MUSM ♀. Paratypes: 2 ♀, same data as holotype; 5 ♀, same except (11°33′35″S, 73°38′28″W), el. 2,050 m, 2 July 1997, Louise H. Emmons #1398, USNM 582148 ♀.

Diagnosis.—The female is unique among all known species of *Gliricola* in having the slender lateroposterior process on each of pleura III–VII and the large number of marginal setae surrounding each gonapophysis. No females of the other taxa have any suggestion of such a pleural process or of gonapophysis chaetotaxy approaching that of *G. brooksae*.

Etymology.—This species is named for Marion A. Brooks, Department of Entomology, University of Minnesota, in recognition of her lengthy and productive career in teaching and research on insect microbiology and the over 45 years she has been a close friend and colleague of the senior author.

Discussion

The specimen of *Cuscomys ashaninka* that yielded the series of lice used here in the description of the new species *Gliricola cutkompi* also was the source of the series of *Abrocomophaga* used by Price and Timm (2000) as the basis for the new species description of *A. emmonsae*. Thus, this single individual was the host for lice of two different genera in the family Gyropidae.

Where accurate records are available, we find gyropid lice to be extremely host-specific ectoparasites, with speciation of lice closely paralleling speciation of their mammalian hosts (Price and Timm 1997, 2000). Where we have a solid understanding of both host and louse species, only a single species of louse in the subgenus *Gliricola* occurs on a single host individual, whereas two (or in one case three) species of lice in the subgenus *Hutiaphilus* may be present on an individual host (Price and Timm 1997, 2000). As species of *Gliricola* are known to occur on a host species throughout its range, we suspect that *G. cutkompi* will be found on *Cuscomys ashaninka* and *G. brooksae* on *Dactylomys peruanus* throughout their respective ranges.

Members of the genus *Gliricola* are now known from the Central and South American caviomorph rodent families Caviidae (5 *Gliricola* known) and Echimyidae (25 *Gliricola* known), the endemic South American family Abrocomidae (1 *Gliricola* known),

and the endemic West Indian family Capromyidae (9 *Hutiaphilus* known). Because of the diverse radiation of the caviomorph rodents in these families (Abrocomidae, 5 species; Capromyidae, 13 species; Caviidae, 14 species; and Echimyidae, 70+ species), the host specificity of *Gliricola*, and the paucity of gyropid lice currently available from these rodents, we strongly suspect that numerous new species of *Gliricola* have yet to be discovered. Clearly, species of *Gliricola* are widely distributed on the caviomorph rodents and are host specific, attesting to an ancient host–parasite association. Much remains to be learned about the systematics and host relationships in this extremely diverse and speciose genus of chewing lice.

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